

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Improving 9-1-1 Reliability)	PS Docket No. 13-75
)	
Reliability and Continuity of Communications)	
Networks, Including Broadband Technologies)	PS Docket No. 11-60

**COMMENTS OF THE NATIONAL ASSOCIATION
OF TELECOMMUNICATIONS OFFICERS AND ADVISORS
IN RESPONSE TO THE NOTICE OF
PROPOSED RULEMAKING**

I. INTRODUCTION

The National Association of Telecommunications Officers and Advisors (“NATOA”) submits these comments in response to the Commission’s Notice of Proposed Rulemaking (“NPRM”), released March 20, 2013, in the above-captioned proceeding.

NATOA’s membership includes local government officials and staff members from across the nation whose responsibility it is to develop and administer communications policy and the provision of such services for the nation’s local governments.

As representatives of local governments in communications, we know firsthand how central communications services are to police, fire, and other emergency response personnel. The 9-1-1 Emergency Call System is the most critical component of public access to local emergency responders. In the event that a natural or man-made event poses a threat to the operability of the 9-1-1 system, local officials need to keep the system functioning. Ultimately, the responsibility for serving people in need falls to local first responders, and therefore local governments must find a way in any circumstance for the public to call for help.

The types of failures described in the NPRM and the Public Safety and Homeland Security Bureau's ("PSHSB" or "Bureau") report titled "Impact of the June 2012 Derecho on Communications Networks and Services: Report and Recommendations" ("Derecho Report")¹ impact both the 9-1-1 system and the phone network itself. When a central office ("CO") fails, and the phone network fails, governments can lose the ability to coordinate internally using the phone system. The public loses the ability to call—either to the government or anyone else. Although wireless networks are in some ways separate from the wireline phone system, the COs and Incumbent Local Exchange Carrier ("ILEC") networks remain the points where many wireless calls connect to outside networks—to reach wired phones, phones on other wireless networks, long distance, and the Internet. Therefore ILEC COs and the wireline phone networks continue to be relevant and critical for the foreseeable future, even as other technologies begin to dominate.

Local governments have extensive experience planning, designing, and operating survivable communications networks and can provide considerable insight in improving communications reliability. NATOA members have constructed hundreds of land-mobile radio, fiber optic, and broadband wireless networks, developed concepts of operations, and performed network operations and monitoring. NATOA members have operated communications in independent networks and in networks operated jointly with private sector companies and commercial carriers. As a result, we have insight into our networks and carrier networks and have seen how these networks have evolved with changes in regulation and technology.

¹ FCC Public Safety & Homeland Security Bureau, "Impact of the June 2012 Derecho on Communications Networks and Services: Report and Recommendations," January 10, 2013, available at: <http://www.fcc.gov/document/derecho-report-and-recommendations>.

II. BACKGROUND

Though the Commission's NPRM was issued in response to a specific regional event—the Mid-Atlantic Derecho storm of 2012 (“Derecho”)—our membership seeks the implementation of 9-1-1 reliability standards and improved telecommunications CO practices on a national level. NATOA has awareness of events in all parts of the country and is well positioned to offer comments that can be broadly applied across various communities. Though severe, the damages to the emergency system caused by this particular weather event might have been even more crippling in many rural communities with fewer resources. We believe that it is important to have reliability standards that are applicable and actionable nationwide, regardless of the specific region.

The severe wind and rain storm that hit the Mid-Atlantic region on June 29, 2012 led to widespread power and communications outages. As the NPRM states, the outages included major disruptions in 9-1-1 communications and many of these disruptions could have been averted with greater preparation and coordination by and between providers and their respective 9-1-1 facilities. This conclusion was affirmed by the Derecho Report.

While we welcome the opportunities that new technologies bring to public safety communications capabilities, we emphasize that as new technologies evolve, the reliability of the legacy network remains a critical asset in stable emergency communications. The 9-1-1 outages illustrated this ongoing need.

We place particular emphasis on the importance of implementing backup power requirements at all 9-1-1 service provider locations. The importance of mitigating the effects of power outages will grow increasingly critical as providers migrate their systems to next generation technologies and with the emergence of the national wireless broadband public safety

network – FirstNet. This network will rely heavily on both public and private communications infrastructure, including the emergency systems of commercial service providers.

It is against this background that we offer the following comments.

III. COMMENTS

We generally concur with the recommendations of the Derecho Report and the analysis of Commission staff as referenced in the NPRM. We believe that regular systems testing to ensure compliance with established best practices, as spelled out by the Communications Security, Reliability & Interoperability Council (“CSRIC”), is necessary to ensure ongoing 9-1-1 reliability within service provider networks.²

We would like to affirm and elaborate on the specific recommendations addressing network equipment standards and oversight.

Definition of 9-1-1 Service Provider

As we seek uniform standards for 9-1-1 service providers across the country, we agree that the standards discussed here should apply to all such providers. And we also agree that the definition of “9-1-1 service provider” should include: “all entities, including ILECs, that provide 9-1-1 call routing, ALI, emergency services Internet protocol networks (ESInets), and similar services directly to a PSAP.”³

Electronic Backup

We agree with the recommendation that all provider COs should have generators and concur that the Commission’s cost estimate for installing generators at the COs that do not

² CSRIC replaces the Network Reliability and Interoperability Council (“NRIC”) as of 2007 (see <http://www.fcc.gov/encyclopedia/communications-security-reliability-and-interoperability-council-iii>). Database of best practices is available at <https://www.fcc.gov/nors/outage/bestpractice/BestPractice.cfm>. Referenced sites accessed May 3, 2013.

³ “Notice of Proposed Rulemaking,” March 20, 2013, Federal Communications Commission, PS Docket No. 13-75, p. 12, No. 23.

currently have them is reasonable.⁴

We similarly agree that regular battery testing according to manufacturer specifications should be a condition of compliance with best practices.⁵ However, the NPRM references this testing as an additional cost outside of the routine generator maintenance. Our understanding is that battery testing is not an additional cost, but part of a reasonable baseline of operations and should not be counted as an additional cost.

We concur with the additional yearly cost estimates for the generators that are currently untested.⁶ Generator testing should be once a month at minimum. Testing includes starting the generator and running it with an electrical load for approximately 20 minutes. Many modern generators contain self-testing mechanisms and automatically come online once per month.

Commission staff assumes \$320 to expedite a generator repair in the next maintenance window after a failure.⁷ We agree with this estimate. We also emphasize the importance of beginning repairs quickly. If a generator failure occurs, the provider should know immediately by way of the service provider's electronic monitoring systems; there should be no time between the failure and the reporting. The process for initiating repairs should, therefore, commence with very little lag time.

Most CO locations have only one generator, and, in general, COs are widely dispersed geographically. It is therefore critical that providers enable personnel to respond quickly by providing comprehensive training and adequate resources and that all CO locations are adequately monitored during an emergency. To the greatest extent possible, service providers should enable CO technicians to have physical access to affected locations during emergency

⁴ *Id.*, p. 24, No. 52.

⁵ *Id.*, p. 24, No. 53.

⁶ *Id.*, p. 24, No. 54.

⁷ *Id.*, p. 25, No. 55.

events in the event of generator failures. We recognize, however, that under dangerous emergency conditions, it is not always possible to physically travel to outage sites. This makes it even more important to ensure in advance that backup power configurations are automated and redundant where possible.

In COs that house dual generators, the generators should be electronically separated to ensure that one can act as a fail-safe for the other, and that the failure of one does not cause a second failure. As noted by Commission staff, a tandem configuration, where one generator relies on the other to transfer its power, should not be implemented. The Commission should require a transfer switch configuration, where one generator can be switched over to assume the load of the other in the event of a failure. At these sites, all critical equipment should be rewired to operate under either generator's power during a failure event. We anticipate that reconfiguring the electronics in this way could be done while personnel are already on site setting up the transfer switch configuration for the generators, and would take no more than a few additional hours to complete. We otherwise concur with the cost estimates of Commission staff.⁸

We also note that remote terminal access⁹ is often important during emergencies. For remote terminals, providers should ensure backup generator power is available and accessible in a timely manner—for example, by having a plan and resources to place portable generators at the terminals. Remote terminals typically do not serve 9-1-1 centers, but a failure may disconnect thousands of people in the area from the phone network.

Remote Monitoring

Diversity of remote monitoring infrastructure is a critical component of reliability. In

⁸ *Id.*, p. 25, No. 56 – 57.

⁹ Remote terminals refer to small mini-COs, typically in environmentally controlled vaults.

response to staff's concerns about redundant monitoring links,¹⁰ we recommend that route diversity and aggregation point diversity be required between network elements and the network operations center ("NOC"). If a diverse wired path is not possible or cost-effective, we suggest considering an alternative technology, such as satellite data, to provide a diverse path. We note that alternative technologies independent of the phone network can cost-effectively add to the level of redundancy even where wired phone infrastructure is available. Many local and state governments have had positive results using satellite infrastructure to maintain continuity of operations in emergencies, and large entities such as ILECs will be able to negotiate competitive pricing for the service.

We concur with the Bureau's recommendation to implement diverse monitor and control capabilities.¹¹ If current CSRIC standards do not address best practices for monitoring, we recommend that the Bureau identify this as an area of study for further best practices.¹² Best practices should include redundancy and diversity for all monitoring pathways.

We recommend that service providers be required to file reports on the diversity of their network monitoring systems with the Commission. In the event the diversification is altered, an updated report should be filed at the time of the system change.¹³ ILECs should already record this material in a database such as the Trunks Integrated Record Keeping System (TIRKS) developed by Telcordia and used by most ILECs. We also favor having providers certify the diversity of their monitoring and control links.¹⁴

¹⁰ "Notice of Proposed Rulemaking," p. 26, No. 59 – 60.

¹¹ *Id.*, p. 26, No. 61.

¹² *Id.*, p. 27, No. 61.

¹³ *Id.*, p. 27, No. 62.

¹⁴ *Id.*, p. 27, No. 63.

Once diverse network paths are in place, they are unlikely to change significantly. Nevertheless, it is important that ILECs periodically verify and certify that diversity remains.¹⁵ The provider should be required to evaluate the network for failure points, perform an audit of the circuit paths, and test all critical electronic circuits, including PSAPs, when the network paths are first established. We recommend a yearly audit to ensure that the established diverse configuration is not compromised. In the event a monitoring path fails, the provider should know immediately due to losing the monitoring feed. Managers and first-level personnel should be given the authority and responsibility to gather this information and affirm that best practice standards are met. (This falls under the scope of CSRIC Best Practice 8-7-0401.)¹⁶ If the manager feels that any variation from these standards is warranted, the changes should only take place with written authorization from a company director. The manager or first-level personnel conducting this work should have all relevant authority to implement the audits and make all staffing, purchasing, and time allocation decisions needed to allow the work to take place regularly and in a timely manner.

Outage Notification

We concur with the proposed amendments to require uniform PSAP notification during outages affecting 9-1-1 service.¹⁷

We concur with the proposed window for providers to notify the Commission of an outage.¹⁸ We reiterate that the company should have processes that immediately make it aware of all outages and their impact. So, while the window for notifying the commission may be 120 minutes, there should be no significant interval between the outage event and the provider's

¹⁵ *Id.*, pp. 26 – 27, No. 59 – 64.

¹⁶ *Id.*, p. 27, No. 61.

¹⁷ *Id.*, p. 28, No. 67.

¹⁸ *Id.*, p. 28, No. 68.

knowledge of the event. Therefore, the Commission would be notified within 120 minutes of the event itself.

On the subject of communications between service providers and their PSAPs, we believe that when a large-scale disruption is possible a responsible individual from the provider should be present at the emergency operations center.¹⁹ This person should have the authority and actionable knowledge about the network needed to respond to the needs of the emergency personnel. We believe it is important for the responsible individual to have established a working relationship with the emergency managers in advance and that the service provider should not assign the individual in an ad hoc manner at the time of the event.²⁰

IV. CONCLUSION

NATOA applauds the Bureau for issuing this NPRM and seeking comment on various approaches to ensure the reliability and resiliency of the nation's 9-1-1 system. The Derecho storm and other emergencies, such as Superstorm Sandy, served to exposed weaknesses in our current system. It is hoped that this proceeding and others will lead to real improvements to ensure our 9-1-1 system remains up and running when it is needed the most.

Respectfully submitted,



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¹⁹ *Id.*, p. 29, No. 69.

²⁰ *Id.*, p. 30, No. 73.